

Wood (J. A.) H. M. M. Reese

BENEFICIAL RESULTS

FROM THE USE OF

MECHANICAL APPLIANCES

IN

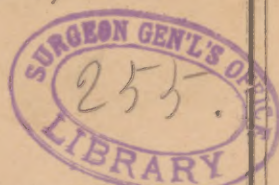
POTT'S DISEASE OF THE SPINE,

Illustrated with Cases.

BY

JACOB A. WOOD, M. D.,

OF NEW YORK.



From the New York Journal of Medicine and The American Medical Times.

New York:

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1874.

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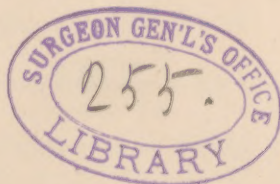
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SPINAL DISEASES.

A NEW AND EFFICIENT METHOD OF TREATING CURVATURES OF
THE SPINE AND SPINAL WEAKNESS,

BY

JACOB A. WOOD, M.D.,

No. 31 Cooper Institute, New York.

HAVING examined the SERPENTINE SPRING APPARATUS, used by Dr. J. A. WOOD in the treatment of Curvatures of the Spine, we recommend it as efficient and comfortable to the patient,

HENRY J. BIGELOW, M.D., Professor of Surgery, Harvard University.

GEORGE HAYWARD, M.D., Ex-Professor of Surgery, Harvard University.

WINSLOW LEWIS, M.D., Boston, Mass.

J. V. C. SMITH, M.D., Boston, Mass.

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REFERENCE.

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SAMUEL W. THAYER, JR., M.D., Professor of Anatomy in the University of Vt.

JAMES H. CROMBIE, M.D., Derry, N. H.

 It is not expected, nor even *desired*, that Physicians who refer their patients to me should give up the management of their cases, *except* so far as relates to the *mechanical* part of the treatment.

POTT'S DISEASE;

OR,

ANGULAR CURVATURE OF THE SPINE.

HAVING devoted my time and attention to the treatment of spinal diseases for the last six years or more, examining closely the results that have followed, I now propose to show, by the report of cases, that a cure in Pott's Disease of the Spine does not, in *all* cases, "NECESSARILY consist of curvature," as is usually maintained; but that the further progress of the curvature may generally be arrested from the time treatment is commenced, and, in cases of a recent character, a cure effected with the curvature nearly or quite reduced by *appropriate* mechanical appliances, and the internal use of medicinal agents, to the *entire* exclusion of setons, issues, or any other counter irritant, or even the recumbent position.

Case 1.

Master —, aged 9 years, son of Dr. Lyman Bartlett, of New Bedford, Mass., was placed under my care for the treatment of angular curvature of the spine, December 14, 1855.

The early history of this patient, as related to me, bore upon its face an unfavorable cast—three uncles, on the mother's side, having died in childhood of consumption, which they inherited from their mother, another victim of that treacherous disease. The patient, himself, exhibited early and repeated indications of premature decay, and, in the autumn of 1854, began to complain occasionally of pain in the left hip.

In January, 1855, had an attack of croup, followed with severe paroxysms of cough, which continued about three weeks, when an attack of measles supervened, of extreme severity.

For three months following the attack of croup, little or no respiratory murmur was perceptible in the left lung.

While recovering from the measles, the patient having occasion to get up in the night, it was ascertained that he could not stand upright, but was obliged to support himself by placing his hands upon his knees. This led to the discovery of a curvature of the spine, with a small knuckle, which was distinctly marked.

The pain in the back and legs was severe, extending to the knees and ankles, and affecting other parts of the system; the pain occurring at intervals, and the curvature continuing to increase from this up to the time I first saw the patient—some ten months after. The history, thus far, I obtained from the Doctor himself, who is scrupulously exact in noting observations, and in the statement of facts. The disease had now existed more than a year, affecting, particularly, the three lower dorsal vertebræ, producing a bold, angular projection of the spine backwards, a pend- ing and prominent abdomen, with a flattened chest. The lower extremities were contracted and drawn up, the left about an inch shorter than the right, and any effort to extend them was painful to the patient.

The pain was severe, the lower extremities nearly powerless, and but faint hopes had been entertained of a final recovery. He was now utterly unable to stand, and had not been dressed for nearly six months, wearied and worn, as this class of patients usually are, from pain, and suffering, and continued confinement.

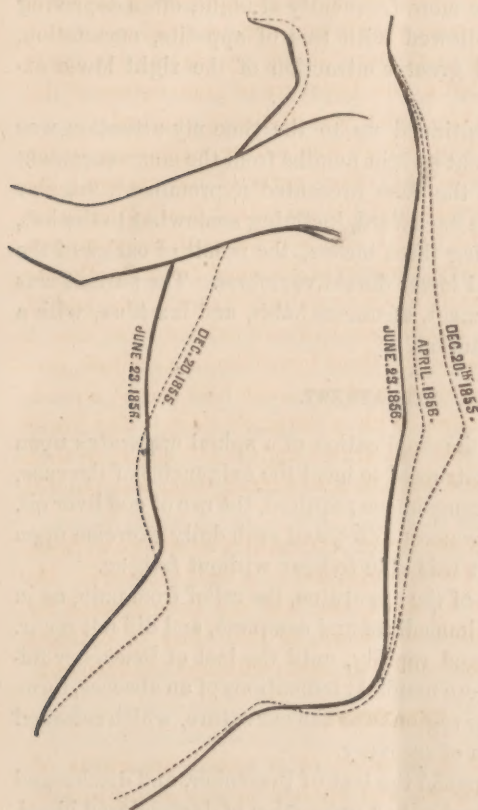
TREATMENT.

This consisted in the application of a spinal apparatus of recent invention, constructed and applied upon a *new* principle, nicely adjusted, and readjusted from time to time as the necessity of the case demanded.

This afforded efficient and comfortable support to the spinal column, enabling the patient to resume, at once, the erect position and move about, cautiously at first, upon his feet, which he was permitted to do daily, as his strength and other circumstances would allow. Galvanism was applied by friction with the hand to the back and limbs once or twice a day, and continued for some length of time, with the use of a free and generous diet.

On the application of the apparatus the relief from pain was *immediate and complete*, and in a few weeks the lower extremities

were of equal length, and could be fully straightened without the least difficulty.



The patient quickly recovered, has grown rapidly, and has since fully regained his vigor, strength, and powers of locomotion, in either of which he would not now appear deficient in comparison with others of his age. The accompanying outlines of the case were taken by the Doctor at his own suggestion, a gentleman of high professional reputation, who very kindly offered them to me, unsolicited, recommending their publication as a matter of medical interest. The anterior and posterior dotted lines represent the *precise* form of the patient as exhibited

December 20, 1855. The two shaded, or dark lines represent *correctly* the form of the patient, June 23, 1856 (six months after), with the curvature nearly obliterated, the abdomen less prominent, with a full and capacious chest. *It should be here observed, that the curvature, since the last outline was taken, has gradually diminished, till every appearance of it has become extinct.*

Case 2.

Miss R., æt. 13 years, only daughter of Lineas Wood, Esq., of New Bedford, Mass., was placed under my care for the treatment of Pott's Disease of the Spine, May 31, 1856.

The disease commenced in October, 1855, with severe pain in the right hip, extending down the thigh, and occurring in paroxysm. This took place more frequently at night, often depriving the patient of rest, followed with loss of appetite, emaciation, general debility, and great contraction of the right lower extremity.

These symptoms continued up to the time my attention was first called to the patient—eight months from the commencement of the disease—when the case presented a prominent, angular curvature of the spine backward, inclining somewhat to the left, shortening the right leg three inches, the result of caries of the two upper lumbar and lower dorsal vertebræ. The patient was of a nervous temperament, strumous habit, and lax fibre, with a weak and frail constitution.

TREATMENT.

This consisted in the application of a spinal apparatus upon the *new* principle, constructed to meet the exigencies of the case, and readjusted as circumstances required, the use of cod liver oil, three times a day, a generous diet, and such daily exercise upon the feet as the patient was able to bear without fatigue.

On the adjustment of the apparatus, the relief from pain, as in the former case, was immediate and complete, and did not recur.

The patient improved rapidly, until the last of December following, when there were manifest indications of an abscess, forming in the right lumbar region near the curvature, which retarded somewhat the process of recovery.

The abscess was opened the last of December, and discharged three pints of pus, mixed with a proportion of dark-colored blood.

The discharge continued abundant for several weeks, and at a subsequent period, numerous pieces of bone, varying from one quarter to half an inch in length, passed with the discharge of matter.

October 1, 1857.—The abscess is now healed, the curvature completely reduced, the lower extremities of equal length, original form fully restored, and the patient, whose weight at the time I first saw her (sixteen months since) was only sixty-five pounds, has now attained to one hundred and fourteen pounds, and, in all respects, has a healthy and robust appearance.

LETTER FROM DR. BARTLETT.

NEW BEDFORD, Nov. 10, 1857.

Dr. J. A. Wood, *Boston*.

DEAR SIR :—I have just read, in the proof of the forthcoming number of the *N. Y. Journal of Medicine*, your report of two cases of Pott's Disease of the Spine. The cases are correctly reported, but more facts of interest connected with them might have been given.

The case of the Irish girl, on Sixth Street, at Mrs. Dunbar's, which you have *not* reported, is quite as remarkable in all respects as either of the above. Your treatment of her case was commenced early in 1855. She has been perfectly well for more than a year.

I cannot urge upon you too strongly the importance of taking outline drawings of all cases where much deformity exists. They would have been equally as striking in the last two as in the first of the above cases, if they had been taken.

The other cases treated by you in New Bedford, although *not* less successful or important than the above outlines, are of less consequence, because less deformity existed.

Very respectfully yours,

LYMAN BARTLETT.

Case 3.

Son of Mr. ———, West Roxbury, Mass., aged 2 years and 1 month, of light complexion and scrofulous diathesis, came under treatment for Pott's Disease of the Spine, June 15, 1855.

The deformity in this case consisted both of a lateral and angular projection of the spine, each well defined and strongly marked, as seen in fig. 1.

The former consisted of a bold reflection of the spine to the left, extending from the cervix to the sacrum, and the latter of an angular projection of the eight, ninth, and tenth dorsal vertebræ.

To avoid tedious detail, I give only a few of the leading facts in the history of this case, as related by the mother.

She informed me that the child had always evinced a peculiar weakness of the back from its birth, a few months after which an irregularity in the course of the spine was discovered.

There was a tardy development of strength, and a manifest want of the ordinary physical force and energy in the child up to

the age of 16 months, when it was suddenly attacked with apparent paralysis, and remained *perfectly* helpless for many weeks, with slight, *occasional* febrile excitement, extreme paleness, and ultimate emaciation.



The recovery from this attack was protracted and imperfect, during which the deformity continued with a more rapid increase than at any previous period of the disease, and, overpowered by all the contingencies in the case, the child had never been able to walk, up to the commencement of the treatment.

The body was thrown into such a position, by this distortion of the spine, that the abdominal viscera were pressed with great force into the left iliac region, presenting there the appearance of a large tumor, as seen at (a) in the above cut.

The early history of this case, and its subsequent developments, suggest the following inquiry. Is Pott's Disease of the Spine *ever* congenital?

The treatment applied in this case, was simply mechanical spring-like in its action, and comfortable to the patient, a generous diet and exercise in the open air.

Four days from the first application of the apparatus, the patient walked across the room, and four weeks from that time, he walked a third of a mile without any apparent fatigue.

By keeping the apparatus well adjusted, and supporting properly every part embraced by it, the general health and strength

improved rapidly, the deformity gradually diminished until nearly removed, when the process was somewhat interrupted by inattention of those having charge of the child to the instructions given. Consequently, there yet remains a *very slight* lateral variation of the spine, from a normal position, yet susceptible of removal, not exhibited in fig. 2, as the objects of these reports is to illustrate more particularly, the result of treatment in angular curvature of the spine.

With this exception, fig. 2 illustrates correctly the result of treatment in the case.



The patient has grown rapidly, and for more than two years has been vigorous, robust, *fat*, and healthy.

Case 4.

Son of Mr. ————, Chicago, Ill., aged 8 years, of light complexion, strumous habit, pale, emaciated, and sickly in appearance, weight 36 lbs. (precisely what it was four years previous), came under treatment for Pott's Disease of the Spine, March 3, 1857.

The disease had existed more than three years, and involved the 5th, 6th, and 7th dorsal vertebræ, producing at that point a formidable posterior projection of the spinal column, with its consequent results to the contour of the whole system, as seen in fig. 3.

Anchylosis seemed nearly, or quite complete, and no encouragement was given as to the result of treatment, beyond an improvement of the general health, and, perhaps, to some slight degree,

the general form and figure of the patient, as circumstances would seem to forbid the accomplishment of more than that.



Fig. 3.

The improvement in the form of the patient, as the result of treatment, is shown in fig. 4, which may be contrasted with the one above to illustrate it more fully, both of which were drawn with care and accuracy.

The improvement of the general health and strength was still greater ; as, when first received, the patient was able to walk a few rods *only*, without being obliged to rest ; but, at the expiration of two months, he had become strong, robust, and healthy, exercising vigorously upon his feet through the day, without any apparent fatigue.



Fig. 4.

The parents were then permitted to take the patient home. In May, after the lapse of one year, he returned again greatly im-

proved, but not as much as he might have been had more particular attention been given to his case during the last six months, as the apparatus had not been kept properly adjusted, being some what out of repair.

This case is reported more particularly to show the advantage of well-adjusted, appropriate, mechanical support to patients embarrassed and overpowered by the *burden of position* often enforced upon them by the destruction of some portion of the spinal column.

The treatment consisted in the adjustment and readjustment of an apparatus, briefly described in a former number of the *N. Y. Journal of Medicine*, galvanism, free diet, and what exercise the patient could bear.

Case 5.

The history of the following case was furnished by Dr. Lyman Bartlett, of New Bedford, Mass., who attended the patient through the fever to which allusion is made, the patient still continuing under his charge up to the time I first saw her.

Miss Elizabeth Potter, aged 16, bluish-gray eyes, light florid complexion, dark brown hair, of scrofulous and consumptive family, was attacked with *typhoid fever* about September 12, 1857. The fever became of unusual severity, insomuch that, from the 30th September to the 3rd October, her life was despaired of. She began, and continued slowly to convalesce from about the 20th October. From the 1st to the 9th December, she was able to sit up in a chair for several hours daily.

About the 6th December, she began to complain of pain in the back on sitting up. On the 10th December, after sitting up longer than usual, she was attacked with severe pain in the region of the first lumbar vertebræ. This continued for two or three weeks with such severity, that she could not be turned in bed; and was only relieved by presence of the hand, constantly applied day and night for the period of nearly a week.

On examination (made with great difficulty on account of the pain caused by moving her), a curvature of the spine was discovered, of the length of about four vertebræ, having its centre between the last dorsal and first lumbar vertebræ, and to the degree represented in fig. 5, as nearly as could be judged; her condition rendering an exact outline drawing impracticable.

She had severe bed-sores over both trochanters, then of some

six weeks' standing, and which were not entirely healed until the February following.

Her emaciation was extreme, greater than ever before witnessed by the writer in any case, from any cause.

On raising her out of the hollow in the bed into which she had settled, and making extension and counter-extension from the ankles and head, the curvation was somewhat reduced and the pain in the spine diminished. This partial relief was continued by the firm application of a broad swathe around the loins.

Her condition did not materially improve, however, until after the 12th January, 1858, at which time Dr. J. A. Wood applied his apparatus for disease of the spine.



Fig. 5.

Her *great emaciation* rendered it difficult to fit the apparatus, so as not to give her annoyance, for several days. So *scraggy* was she, that it seemed like an attempt to fit stays to a *gun-lock*. By means of much padding, however, Dr. Wood succeeded, and, in the course of three or four days, relief was complete whilst the apparatus was applied; but pain returned for several months afterwards whenever the apparatus was removed.

Now (July 24, 1858), she has been able to sit up three or four hours a day for several weeks past without suffering, and can turn in bed as well as ever she could.

Her flesh and strength are now very fair, and steadily improving. She may be considered nearly cured.

In the appended cut, A represents the character and degree of deformity, as described by Dr. Bartlett, that existed previous to an attempt at its reduction and relief of the patient. B represents the position of the spinal column at the point of curvation, eight months after the commencement of the treatment, the general health and strength of the patient at the same time rapidly improving.

Case 6.

Son of Mr. Charles T. Stevens, No. 8 New Prince Street, Boston, Mass., aged 5 years, of light, rather florid complexion and scrofu-

lous diathesis, was placed under my charge for treatment of Pott's Disease of the Spine, March 30, 1857.

The case then presented an angular curvature of the spine, projecting, posteriorly, nearly one and a quarter inch, involving the three lower, and having for its centre the eleventh dorsal vertebrae. The body inclined considerably to one side, and the left hip was elevated one and a half inch above the right.

Respiration was hurried and laborious, and partial paralysis of one leg, with other impediments, rendered locomotion somewhat difficult.

From the mother I obtained the following history of the case, from its commencement to the time that it was placed under my care :

In March, 1854, at the age of two years, the patient was attacked with lung fever; whooping-cough supervening, the sickness was protracted and severe, characterized with great prostration, copious sweating, and ultimately extreme emaciation.

In the Autumn succeeding the attack, the cough still continuing from the first, hæmorrhage from the lungs ensued, of which there were several attacks, and at one time, in the space of twenty-four hours, there were, by estimation, from three to four ounces of blood thrown up in the act of coughing; the patient becoming more prostrate and pallid, little or no hopes were entertained of his recovery.

In April, 1855, at the expiration of one year from the commencement of this sickness, the patient had, however, nearly recovered, when he was attacked with severe pain in the bowels and partial paralysis of the lower extremities accompanying; he was deprived of the power of locomotion, which did not return again in any degree until the expiration of eight or ten months. Difficult respiration and a tumid state of the abdomen then existed to a marked degree. In the Spring of 1856, a small knuckle was discovered projecting from that portion of the spinal column already referred to, which continued to increase, with a recurrence of the pain in the bowels, at intervals, with all the general symptoms, more or less aggravated, that usually attend such cases.

March 30, 1857.—The progress of the disease has continued unabated up to the present time, and resisted all attempts to arrest it by mechanical or other means employed for that purpose,

which, as remarked by the mother, were resorted to soon after the trouble was first discovered

My treatment of *this* case was entirely mechanical, accompanied with such instructions in reference to the general health of the patient, as should usually be observed in a normal or healthy state of the system.

An apparatus was constructed to meet all the indications in the case as well as possible, by giving that support to the spinal column which would, in the most efficient manner, relieve the affected part from all undue pressure from the weight of the superior portion of the body, as well as to prevent the evil consequences of the various motions of the body at that point.

The apparatus was adjusted and readjusted as often as the circumstances in the case required, with a *direct* bearing upon the transverse processes of the projecting vertebræ.

By this arrangement, the bowels are elevated and retained in their proper position by gentle support, thus relieving the superior portion of the body from a dragging weight that serves not only to enhance the original trouble, but greatly to embarrass respiration.

Convalescence commenced at once, and continued without interruption.

The curvature is completely reduced, the patient has grown well, and is now straight, robust, and healthy.

Case 7.

Mrs. R., of Woburn, Massachusetts, aged thirty-six years, tall in stature, of fair complexion, and of somewhat scrofulous diathesis, came under treatment for Pott's Disease of the Spine, July, 1858.

The following is a brief history of the case from its commencement to the time I first saw it, as related by the patient.

Eight years ago she was attacked with pulmonary disease, unprovoked by a cold, characterized at first with a dry, hacking cough, which, at a subsequent period, became urgent, attended with copious expectoration, occasionally tinged with blood, emaciation, and extreme prostration, with hectic and night sweats.

This sickness continued a little more than six months, and for many weeks during that period, the attending physician and friends of the patient entertained little or no hope of her ultimate recovery

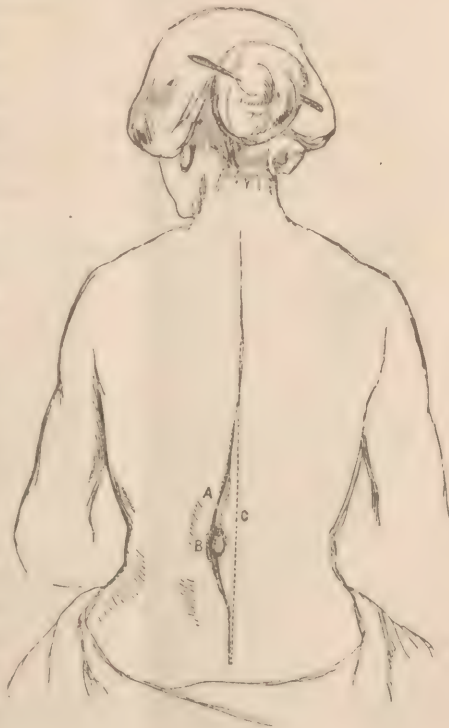
While in this situation, she first began to experience pain in the vicinity of the second and third lumbar vertebræ, with some degree of tenderness on pressure, which did not subside on her recovery from this severe sickness, but both continued with greater or less severity at times, soon accompanied with curvature of the spine, which was quite apparent, even when the patient was standing or walking about.

In April, 1857, the case assumed a more formidable character.

At that time, from some violent exertion on the part of the patient, in consequence of sudden fright, the pain was greatly increased and the curvature more rapidly developed than at any former period of the disease.

The difficulty progressed, and on examining the case in July, 1858, when my attention was first directed to it, I found the second and third lumbar vertebræ projecting posteriorly, as seen at B, in the accompanying cut, about half an inch, forcing those directly above and below, more or less, from their normal position.

In connection with this posterior projection, there was, also, a lateral reflection of the spinal column, to the left, embracing the lumbar, and several of the lower dorsal vertebræ, as seen at A, in the accompanying figure, which represents,



correctly, the extent and degree of this lateral inclination of the spinal column.

The pain was severe in the back, hip, and left lower extremity, with a partial loss of power in that limb. The muscles were contracted, drawing the body to one side, rendering exercise difficult and painful.

The treatment was simply mechanical, and consisted in the application of a Spinal Apparatus, such as has been described in a former number of the *New York Journal of Medicine*, appropriately adjusted and readjusted at such times and manner as the nature of the case demanded.

The usual instructions in regard to regimen in those cases were given, with the recommendation only of *moderate* exercise.

The patient has fully recovered, with a *complete* reduction of the curvature, as seen at C in the preceding cut.

June 16, 1859.

Case 8.

Son of Mr. G——, city of New York, aged six years and two months, of light complexion, scrofulous diathesis, and full development, came under treatment for Pott's Disease of the Spine

Feb. 20, 1860. From the mother the following history of the case was obtained:—In April, 1859, the child was attacked with whooping-cough of unusual severity, which continued several weeks. In June, the cough still continuing, the patient was seized suddenly with pain in the back, and for several days was unable to rise from the recumbent position without assistance. Shortly after, an attack of dysentery supervened, which continued three or four weeks, reducing the child to a degree which rendered its recovery doubtful.

In September, after apparently recovering his usual health and strength, an injury was produced by a slight fall. The pain in the back continued and became quite severe at times, more particularly in the night. In Octo-



Fig. 1.



Fig. 2.

ber, a slight projection was discovered in the lower part of the spine. In December, the projection had greatly increased, the pain was more constant and severe; one limb was considerably contracted and drawn up, and locomotion much embarrassed. Since that time the child's condition had been growing worse. Upon examining the case there was observed a bold posterior curvature, as represented in Fig. 1, and quite acute in its form, having for its centre the third lumbar vertebra. Locomotion was performed with difficulty, and while standing or sitting the patient was constantly inclined to rest upon his hands for support, and for relief from pain and suffering.

The treatment consisted in mechanical pressure upon the affected part, and general support applied to the body (flexible in its character), to render the support to the spinal column as efficient as possible; together with the use of some of the more ordinary tonics usually given in such cases. The mechanical appliances were often readjusted, and such alterations in their construction were effected, from time to time, as the changes in the size and form of the curvature and figure of the patient rendered necessary.

Upon the application of the apparatus, the patient was relieved of his suffering and enabled to walk about comfortably. The patient was soon allowed to exercise freely in the open air, being restricted only to two hours' rest during the day to avoid too much fatigue.

The patient is now strong, robust, and healthy, with the curvature reduced as seen in Fig. 2. It is worthy of note that, as in the present, very many cases of Pott's Disease of the Spine are developed under the influence of whooping-cough, measles, or scarlatina.

The outline of this case was taken five or six months since, at which time the curvature was still gradually diminishing.

Case 9.

The son of Mr. K——, of New York, aged six years and nine months; complexion fair, but not denoting a decidedly scrofulous diathesis, first came under treatment for Pott's Disease of the Spine, December 6, 1860.

In July, 1859, the child had a slight fall, and was seized at once with severe pain in the back, extending down the right leg. He became nearly or quite helpless, and remained so for about

three weeks. At the expiration of that time exercise upon the feet was attempted, but performed with great difficulty and pain. About three months after that the child began to lean to one side, and to support himself, while walking or standing, by resting his hands upon his thighs, or upon a chair, lounge, or other object within his reach. The right leg was drawn up, and locomotion was performed with the heel raised from the floor. As the difficulty advanced, this abnormal position became more apparent, locomotion more difficult, the pain more severe, both during the day and through the night, and in the paroxysms the child was powerless.

Upon examination I observed a posterior projection of the third lumbar vertebra, with the second forced somewhat from its normal position. The amount of deformity in this case was not so great as usually occurs in a much shorter space of time after the commencement of the disease. The *suffering* of the patient, however, as represented by the mother, was far greater than I have been in the habit of seeing.

Treatment consisted in the application and use of mechanical appliances, similar to those already presented to the reader, together with some of the preparations of iron, as a tonic, and the extract of conium to relieve the pain; also, a generous diet and what exercise the patient was able to endure in the open air. Upon the application of the apparatus the relief from pain was very great, but not so complete as in the majority of cases to which it has been applied. About two months after the treatment commenced, and while the patient was doing well, he met with an accident in falling, which rendered him again nearly helpless. For about twelve days after the accident, the suffering was so intense whenever the support to the spinal column was, in *any* degree, diminished, that the apparatus was not removed during that time. Whenever its removal was proposed, the little fellow would tremble and scream in anticipation of the suffering that would follow. I may remark, in passing, that three other cases of a similar character have occurred in my practice. Whether standing, sitting, or lying down, neither of the cases could dispense with the apparatus for a single moment without the most intense pain. In one it was not removed for the space of two weeks, in another for seven weeks, and in the third, that of a young physician in Massachusetts, it was worn for several successive weeks (the precise number I can not now

recall), without being removed for a change of under-clothing or any other purpose whatever, as in all the others referred to. I allude to these circumstances more particularly to show the importance of evenly adjusted and well adapted mechanical support in Pott's Disease of the Spine, for the purpose not only of making the patient *comfortable* while suffering from the disease, but of bringing the case to the most favorable, as well as speedy termination.

To return to the case under consideration. About five months subsequent to this, while the patient was improving well and able to play about, he received a blow from a stick in the hands of another child, directly upon the diseased bone, whereupon he fell instantly to the floor. A good deal of pain and difficulty in moving about followed, and, subsequently, a superficial abscess formed at that point. Since recovering from its effects, the patient has improved and done well up to the present time. He has suffered but little or no pain for the last eight months, and is now vigorous, robust, and healthy, with the curvature reduced as seen in the accompanying cut.



The degree of deformity that now exists, and here represented is only about one third what it was when my attention was first called to the case, and it is still gradually diminishing.

Case 10.

The son of Dr. —, of Madison Co., New York, aged six years and five months, of scrofulous diathesis, first came under treatment for Pott's Disease of the Spine, December 13, 1859.

The following is an abridged history of the case as communicated by the father :

When about three years and a half old, while complaining somewhat of his back from a previous injury, the child fell from a low stool to the floor, injuring the spine so as to render him unable to walk for two days. Upon examination there was observed a slight posterior projection of the sixth dorsal vertebra. Treatment was at once commenced with blisters and issues near the affected part, internal use of iodide of iron and cod liver oil,

together with special attention to the diet. No means have been left untried, from the commencement of the disease, that would seem to afford the least prospect of relief, but all, apparently, to little or no purpose. The disease steadily progressed, attacking one vertebra after another, until two or three above and below the original point of the disease became more or less involved.

The deformity continued to increase, and locomotion was performed only with great difficulty by resting one hand upon the thigh. In this manner he attempted to move about, but could only walk a short distance without lying down or leaning upon some object for the purposes of rest and support. He at this time was subject to frequent and severe paroxysms of pain in the lower extremities, with partial loss of muscular power.

Upon examining this case, I found the patient much emaciated, feeble, and presenting a bold and extensive posterior projection, as represented in Fig. 1.

The treatment consisted in the use of mechanical means, the *immediate* effect of which was complete relief from pain and suffering, a more erect position of the patient, and enabling him to walk without resting his hand upon his thigh. During the first three months of the treatment there was an improvement of the general health, strength, and figure of the patient, but with little reduction of the curvature. At the expiration of that time, however, the curvature began to lessen more perceptibly, and has gradually decreased until its size is very much reduced, as seen in Fig. 2, which is a correct outline drawing of the case, taken nearly six months since. For nearly two



Fig. 1.



Fig. 2.

years the patient has been healthy and robust, and is extremely active.

As in this, so in a large majority of cases of long standing, with a great loss of bony substance, improvement is much more rapid after the case has been under treatment several months.

The object of the foregoing reports, which were published, only, at the suggestion and earnest request of members of the medical profession, who had witnessed the results of the treatment of some of those cases, was to illustrate, as first proposed, the beneficial effects of mechanical aid in the treatment of angular curvature of the spine and to demonstrate the practicability of its reduction in many instances, notwithstanding the general assumption that a cure in Pott's disease of the spine must *necessarily* consist of curvature.

The first case of the series here recorded, had there been no other adduced in support of the proposition, is ample proof of the fallacy of such assumption.

That was a case of most decisive character, unfavorable both in its aspects and in its antecedents, as will be seen by a perusal of its history.

The few reported were well attested cases, as the facts there related and outline drawings will show.

Other cases, illustrative in their character, might then have been added to the number, as well as, very many that have since come under treatment, equally well attested and in all respects as important and striking in their results, might also but have not been reported.

It was far from my intentions, not wishing to abandon the general practice of medicine, in which I was then engaged in a somewhat distant city, for a specialty, to report those or any other cases that came under my care, with *that object* in view, whatever the results of treatment might be, and was induced to do so, only by an expressed desire of others in the profession who, as they remarked, had been watching the opening of a *new* era in the history and treatment of Pott's disease, with deep interest.

Up to the time those reports were first published there was, I believe, no where to be found on record a single case of complete reduction of angular curvature, of a marked and decided character, from caries of the vertebræ by any method of treatment, whatever.

Although an almost infinite variety of mechanism, constructed for that purpose, as well as, for the general benefit of the patient, had been used since long before the cause and character of the deformity was but imperfectly understood; yet, it had proved not only unsuccessful but, often, a source of painful suffering and great discomfort to the patient while wearing it.

That fact has created some prejudice in the minds of those, both, in and out of the profession, against all mechanical assistance, whatever, in those cases.

But, I have *never* witnessed in the treatment of any class of diseases happier results, nor, more prompt and complete relief from extreme suffering by whatever means employed, than I have often seen follow the application of *well devised* and *properly adjusted* mechanical support in diseases of the spine.

Reference here to a single case, perhaps, may serve to elucidate and confirm this statement.

A boy about seven years of age with angular curvature between the shoulders, had been under treatment nearly a year and a half and wearing, by the suggestion of the attending physician, such mechanical support as he thought best adapted to the condition and comfort of his patient.

The case from the first was characterized with frequent and severe paroxysms of pain with much constant, local suffering in the carious region. The pain continued unabated and the curvature quite prominent and increasing in size, as represented to me in the history given of the case when my attention was first called to it.

On the application of such support to the spinal column as has been here alluded to in connection with these reports, the pain was, at once, relieved and the patient freed from suffering.

But whenever an attempt was made to remove the corset for readjustment, or, slacken the pressure in the least or, even, a suggestion to that effect, so great was the fear and dread of the recurrence of the pain and suffering so long endured that the terror stricken patient would become, at once, so agitated and alarmed that he could, by no means, be persuaded to submit to its removal, which was *never* for one instant effected, until the expiration of *seven* weeks from the time of its first application. It required a long time after that, unusual care and caution in adjusting and readjusting the corset to prevent a return of the pain.

The patient has, now, so completely recovered his health and strength, with an erect and good form, as to require little or no further use of mechanical aid.

Such has been the general result of my experience for the past eighteen years in the treatment of those cases characterized with

much suffering and, whether the pain exists in a greater or less degree, the patient is usually relieved from it and remains comfortable during the progress of recovery from what is generally considered one of the most distressing and fatal class of diseases.

That should be a matter of surprise to no one who understands the anatomical structure of the spine, that the more perfectly the affected part is relieved of superincumbent pressure, as well as motion at the point of disease, the less the patient will suffer, and the more rapid and certain will be his recovery.

Can mechanical aid in the treatment of a fractured limb be more essential to the comfort of the patient and a successful issue in the case, than to a weakened and *literally* broken back?

One is a solution of continuity of a sound and healthy part by sudden force and violence; the other by diseased action of slow and painful development, in which, cause and effect alike demand prompt, energetic, and the most judicious use of remedies.

From the notes and observations of Sir James Earl, F. R. S., Surgeon Extraordinary to the King, we quote the following: "We apply splints to a broken leg while ossification is forming; we do not allow any pressure to be made upon it while that natural process is going on; and the patient afterwards takes off the weight of the body from it by means of crutches until it is perfectly strong, and capable of its own duty. I am at a loss to find any good reason or sound argument why the same means of assistance, at least so far as lies in our power, should not be applied in cases of a weakened spine, in order to take off superincumbent pressure, and to endeavor to restore the actual form of the spine during the progress of the cure; if this be not attempted, or cannot be brought about at this time, the consequence must be that the back will remain crooked during the cure;" to which I will add, and ever after. He goes on further to say: "The period when we are most likely to improve the form of the pillar must be during the progress of the cure, while the parts allow of some latitude of motion; when they are once become consolidated and fixed by the growth of bony matter, no alteration scarcely can take place but what is effected by the future general growth of the whole body."

Here, we have the views of a cotemporary of Mr. Pott upon this subject, whose opinion, from his extended knowledge and experience, as well as rank, (Surgeon to his Royal Highness,)

is entitled to the fullest confidence. And what can be more suggestive of the necessity of well adjusted support to the spine in a weakened and diseased condition, unless it is the prompt and complete relief it brings when applied, than to see a child thus affected constantly seeking relief by resting with the elbows on whatever object happens within its reach ; or, supporting itself with the hands upon its thighs when standing or exercising upon the feet. The patient's own natural instincts thus point to the legitimate, direct, and most practical source of relief from his painful and suffering condition. Not until a short time previous to the death of Mr. Percival Pott, which occurred December 22d, 1788, at the age of seventy-five years, was there but little known of the nature of the disease we are now considering.

He was a man of eminence in the profession he so highly honored, and, for forty-two years, Surgeon of St. Bartholomew's Hospital, London. To him is the credit due for the first correct and complete description of its pathological character in a treatise on the subject, the last of his literary productions, entitled "**On the Palsy of the Lower Limbs.**"

It is more particularly for the purpose of answering the oft repeated inquiry, "Why is this called Pott's disease?" that this *special* reference is made.

It was merely an incidental circumstance that led to his discovery of the true character of the disease, and to the introduction of that mode of treating it which consisted in the employment of issues in the immediate vicinity of the caries, by the use of the seton, moxa or caustic, and confining the patient to the horizontal position during the greater part of the time that he was under treatment, as he could not bear the erect position.

From the time of Mr. Pott's discovery as far back, at least, as to the days of Hippocrates, the curvature was considered *accidental*, and this abnormal position of the spine was supposed to be the result of some injury to the back, as by a blow, pulling, lifting, carrying or drawing some heavy load, and forcing one or more of the vertebræ from their normal position, *independent* of any morbid or diseased action whatever of the parts involved.

When paralysis of the lower limbs occurred, it was considered merely a nervous affection and treated as such, until the appearance of the excurvation, to which, was then assigned the cause of this loss of power in the lower extremities. But an abscess

near the curvature, incidentally occurring in one of Mr. Pott's patients, in which the paralyzed extremities were restored to their normal condition in a somewhat shorter space of time than usual in such cases, first led to the belief that the *whole* trouble was the result of disease and weakness at that point. That belief was confirmed and the fact fully established on further investigation of the subject by post-mortem examination, which revealed the existence of erosive inflammatory action, caries, and disintegration of the vertebræ involved in the displacement.

For this pathological discovery the credit has been universally conceded to Mr. Pott.

It is, however, to be regretted that his mode of treating the disease did not more fully and satisfactorily meet the wants and necessities of that class of patients.

It consisted, as has already been stated, in the use of issues in some form in the immediate vicinity of the disease, and placing the patient in a recumbent position in bed or upon a lounge ; thus depriving him of the advantages of out door air and exercise, which are of most vital importance in preserving the tone and general strength of the system under the exhaustive influence of the disease.

Of the patients *thus* treated, very many die of prostration from long confinement and extreme suffering, and of those that recover, a large proportion are seriously deformed and crippled for life.

(From the New York Medical Journal.)

REMARKS ON THE EARLY SYMPTOMS AND TREATMENT
OF
POTT'S DISEASE OF THE SPINE.

BY J. A. WOOD, M. D., NEW YORK.

WITHIN a limited period, since the report of the preceding cases, over four hundred and seventy others were treated in like manner and with similar results.

About eighteen per cent. of the number treated were affected with paralysis of the lower extremities, and nearly twenty per cent. with abscess, both occurring at an earlier or later stage of the disease, which is met with at all periods of life, from early infancy to old age.

The oldest person, however, that has come under my observation, affected with this disease, was aged fifty-five years. Another, in reference to whose case I was consulted by letter, was sixty years of age, and formerly president of one of our Western colleges, and was discharging the duties of that office when attacked with the disease. A more recent case, in a person fifty years of age, is now under treatment.

It occurs more frequently, however, in children under ten years old; but from two to five years of age may be considered the period of its most frequent occurrence.

The disease was often preceded by scarlet fever, whooping-cough, or measles; and children who have suffered from a severe attack of the former are very liable to fall into a state of permanently impaired health, and become a prey to some of the various chronic forms of scrofula, among the more serious of which is caries of the vertebræ.

Measles, also, in children and young persons of a scrofulous

diathesis, frequently awaken the slumbering germs of that fearful malady, Pott's disease ; while whooping-cough acts only mechanically upon the system in developing more rapidly the disease already existing, but not detected, perhaps, by any of its characteristic symptoms when the cough commenced. In a few instances the disease succeeded severe and protracted typhoid fever ; first manifesting itself when the system, from its reduced condition, was comparatively disarmed of all power of resistance to the development of any hereditary or constitutional taint that might exist, as is frequently the case with incipient phthisis.

From the commencement of the disease up to that period when the curvature first made its appearance (usually in the form of a small knuckle), the average length of time did not vary much from ten months, and was often characterized by paroxysms of most acute suffering.

When paralysis of the lower extremities occurred, the recovery of the patient from his paralytic condition, under the treatment, was only a question of time, and that, often, of brief duration. When long protracted, it was more generally the result of imprudence and sometimes obstinacy of the patient, in persisting in too much exercise upon the feet when first commencing to walk.

In one instance, the patient, of a restive habit, had nearly recovered from the second attack when he fell from a considerable height and became the third time paralyzed, from which he has not regained, and probably never will regain, the use of his limbs.

Paralysis did not, I think, exist in one instance where the disease was situated below the last dorsal vertebra ; but it occurred in an increased ratio proceeding upward from that point. Neither was there a single case of it in the upper extremities connected with *genuine* Pott's disease. Such cases are very rarely found on record. It did occur, however, in one or both arms in the case of the patient sixty years old already alluded to, as having caries in the cervical region, throwing the head forward and downward with the chin resting upon the sternum. This deformity was attended with severe and incessant pain, over which opiates, as I was informed by the attending physician, although liberally administered, appeared to have little or no control.

The treatment in those cases, in addition to the mechanical support, consisted of dry friction applied to the back and limbs, with flannel, or the bare hand, and the use, sometimes, of the gal-

vanic battery. The loss of the power of locomotion, as a contingent of this disease, may be viewed as comparatively of minor importance. The patient is very sure to regain the use of his limbs under treatment. With a restive disposition the paralysis sometimes proves an advantage, as too much exercise upon the feet interferes with the efforts to reduce the curvature, and renders the ultimate success of the treatment less certain.

Dr. Pott ascribed his success in the treatment of paralysis of the lower extremities in this disease to the use of issues applied near the affected portion of the spine, and recommended their continuance for several months after the patient had recovered from his paralytic condition. It may be well to consider whether the remedy here recommended possesses merit superior to every other in such cases. Of this there appears to be no direct proof; and if the fact can not be clearly substantiated by practical results, such practice should be discarded and treated as a source of unnecessary pain and suffering to the patient.

Abscesses sometimes created but little constitutional disturbance; neither did they in many instances appear to affect materially the ultimate results of the treatment, as ten or twelve only of the whole number thus affected terminated fatally, and those were generally of a most decidedly strumous character. In some instances the abscess terminated by absorption. This was more frequently the case when their locality was such as to subject them to the pressure of the corset. That result is very desirable whenever possible to effect it in any way, as it saves the patient from much discomfort, and, at least, *temporary* physical prostration and the attendants from an unpleasant and protracted duty, as the discharge seldom ceases until consolidation of the affected portion of the spine is far advanced. A premature use of the lancet, when abscess is the result of caries of the spine, is more frequently attended with serious constitutional results than when its contents are permitted to escape by a spontaneous opening.

If an abscess is quite painful it may be better, perhaps, to give early exit to the pus, even at a greater risk of constitutional irritation; and, if the surrounding tissues are likely to become too deeply involved by the further expansion of its walls, as is sometimes the case, the use of the lancet is imperative. Otherwise, it is better, usually, that the abscess should remain unmolested until its contents have approached near to the surface.

Very many of the cases presented for special treatment were of long standing, with marked deformity, impaired health, and general prostration, some having been subjected to one form of treatment and some to another. The seton, moxa, and various other forms of counter-irritation, had been resorted to, while in many cases the recumbent position was strictly enforced, in some instances, for a period of nine, twelve, and fifteen months, the patient not being permitted to rise from this position, even when taking nourishment.

But these different methods of treatment have all failed to accomplish what has often been effected, unattended with pain and suffering to the patient, by appropriate mechanical appliances in connection with a liberally sustaining diet and the use of such medicinal agents as the cases appeared to demand, while the patient was comparatively unrestrained from air and exercise during the treatment.

In the *early* stages there is a manifest necessity for mechanical support in the treatment of the disease, indicated by the patient's instinctive and frequent inclination to seek it in leaning, or throwing himself upon whatever may chance to come within his reach, that will afford such support. And the more perfect the support in its design and adaptation, used in the treatment of this disease, the sooner it is applied, the more skillfully it is adjusted and readjusted to the patient, the more satisfactory will be the ultimate results of the treatment.

The early symptoms of caries of the spine are sometimes very obscure, and it is often difficult, more especially for those not familiar with its characteristic features, to form a correct and satisfactory diagnosis. A physician may, and many even those of high standing in the profession do, pass through a series of years of professional service without ever having a single case of the kind come under their observation; and as there are other diseases with symptoms somewhat analogous to this in its early stages, it is often confounded with them, and treatment instituted upon a false theory and pursued until an excurvation of the spine settles beyond all controversy the character of the disease.

During this protracted period of fruitless effort to arrest the further progress of a disease, the pathological character of which may not, perhaps, for a moment have been suspected until it has passed into a chronic form, we lose the most favorable opportu-

nity of effecting speedy relief and complete restoration of the patient without deformity.

The disease sometimes comes on insidiously ; but in a large majority of cases the attack is sudden and severe, the pains occurring spasmodically, and are provoked by mental as well as physical causes, such as fright, mirth, or violent passion. The pain is usually quite remote from the seat of disease, and may be experienced anywhere in the course of the nerves leading from it, or at their extremities. Consequently, it may be in the side, chest, stomach, bowels, or hips and lower limbs, just according to the locality of the disease. That is one reason why those not familiar with its symptoms are so liable to be misled, and to confound it with other affections more commonly met with in those regions where the pain exists. The disease is, therefore, often mistaken for neuralgia of the chest, stomach, bowels, lumbago, nephritis, rheumatism, and various other affections ; and it was stated in the history given of one case that came under my care, that the child had been treated two years for worms, the treatment continuing some time after the discovery of the curvature, so firm was the belief that worms were the prime and only cause of its illness. A patient will be frequently seized with a paroxysm while playing about the house, when it will throw itself suddenly upon the floor and refuse to be taken up or handled while the pain continues. When the pain has ceased, the patient will rise and return again to its amusements, as though nothing special had occurred.

The introduction to a sad sequel frequently occurs in the night. A child, which but a few hours before was put into bed, apparently in perfect health, wakes suddenly out of sleep in wild agitation, shrieking and crying vociferously. The family is aroused, and the cause of this sudden alarm carefully sought for, and not infrequently the solution is found in that very popular theory, "an attack of *worms*;" or, perhaps, a frightful dream. But, in doubt as to which is the real cause, there is administered, both some favorite nostrum as a vermifuge, and a liberal amount of solace. Eventually the pain subsides, the child drops to sleep, and the ever-watchful and anxious mother, full of faith in the infallibility of the remedy, retires again to rest, with the delusive hope that the relief is final and complete. But this is often only the commencement of a series of similar attacks which follow at

various intervals, by day as well as night, and result in protracted sickness and extreme suffering, from which the patient sometimes finds relief only in death. These paroxysms of pain are peculiarly liable to occur whenever the subject first wakes out of sleep; especially so, unless moved and handled with the utmost care and caution, which is not always the case when intrusted entirely to the care of servants and nurses.

Cases occasionally occur in which there is, from the first, but little or no pain experienced, the position of the patient when standing, sitting, or walking, furnishing perhaps the only tangible evidence of the existence of the disease, and is sometimes so marked and peculiar, as to render the character of the disease unmistakable.

The position and habits of the patient are often such as to attract early attention. He inclines to stoop or lean to one side, and sometimes does both, instinctively thrusting his hands into his pockets, or resting them upon the thighs to give support to the back. He avails himself of whatever object of support may chance to be within his reach upon which to lean, and relieve the affected part from the superincumbent weight of the body. The position is modified somewhat, according to the locality of the disease. When situated in the lumbar region it is, usually, more erect than natural—the shoulders are elevated, and the head thrown backward. If the disease is situated in the cervical region, there is a constant inclination to support the head with the hand placed under the chin, or to throw it backward or to one side, resting it upon the shoulder.

Locomotion, from weakness of the back, is usually performed in a shuffling manner; and not unfrequently does a child, previous to the development of other symptoms, manifest a tendency to trip and fall, for which he is often reprimanded before the cause is understood. A complete loss of power of the lower extremities generally in those cases succeeds this tendency sooner or late, and locomotion for a longer or shorter period is suspended.

Pain and tenderness, upon pressure over the affected region, are very seldom experienced by the patient; but tapping on it, or jarring the spine in any way, is commonly attended with more or less suffering, and a sponge wet in hot or cold water, and applied to it, usually produces pain. Any disagreeable impression imparted suddenly to the back, causing a violent contraction of

the spinal muscles, has a similar effect. Placing the patient upon his stomach across a narrow bench or stool, is one of the various methods that may assist, in addition to those above mentioned, in forming a correct diagnosis where doubt in a case exists. In this and various other positions of the body the patient will usually evince more or less suffering, even before any degree of **excurvation of the spine** is detected.

Whenever that makes its appearance, all question of doubt and uncertainty as to the nature of the difficulty is at once settled. But before that occurs, however, there necessarily exists considerable disintegration both of the osseous and fibro-cartilagenous tissues implicated in the disease.

It has already been stated that the length of time that ordinarily intervenes between the onset of the disease and first appearance of any abnormal projection of the spinous processes, (usually in the form of a small knuckle), did not vary much from ten months.

During that, as well as at a subsequent period, an opportunity sometimes occurs in consequence of the supervention of some *acute* difficulty, *fatal* to the patient, of examining the condition of the various tissues involved in caries of the spine, and observing its progress from the incipient to its more advanced stages.

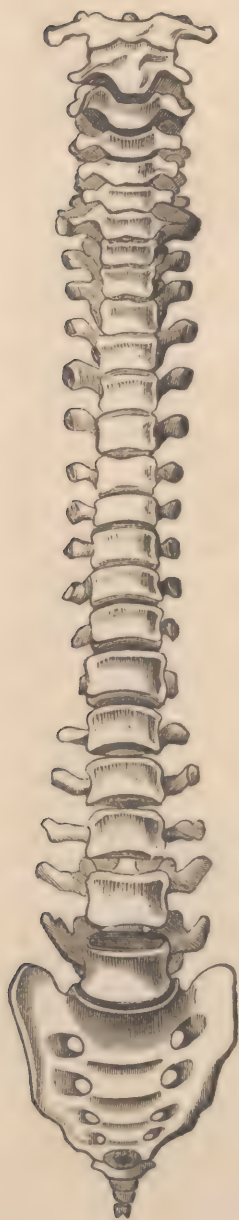
The appearances vary somewhat, however, in different cases, and the progress of the disease is not always uniform. But some idea, both of its pathological character and progress of development, may be obtained by a view of the following engraved illustrations of the disease in some of its more or less advanced stages, both before and after the curvature has become visible.

Figures 1, 2, and 3 represent merely the vertebral column in its normal state—a front and lateral view—together with a vertical section showing the cellulated structure of the vertebrae and also that of the spinal processes, which are more compact and solid in their composition, and consequently much less subject to caries.

Sometimes nearly the entire vertebral substance disappears, while the processes that were attached are found to have undergone but little change from the ravages of the disease.

These, with the arches, often constitute the main portion of the angular projection, and are pressed together by the superincumbent weight of the body in such a manner as to give its surface an irregular and “scraggy” appearance.

1.



2.



3.



Figure 4.—Case of five and a half months standing, in which the attack was sudden and intensely severe, occurring while the child was quietly sleeping in bed and without any premonition, there having been up to that time no manifest indications, whatever, of the existence of the disease.

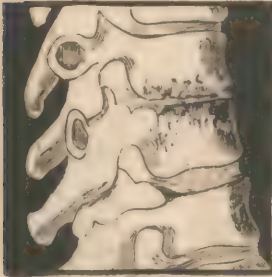


Fig. 4.

At first the paroxysms of pain occurred only in the night, while through the day there was no apparent suffering. But at a later period the pain occurred often during the day, in similar form and severity.

The position of the child, when standing or in motion, soon attracted attention and led to the suspicion that the hip was the seat of difficulty, and the attending physician mistook the disease for that of the hip joint. Patient, at 2 years and 4 months; cause of death, scarletina.

Post-mortem examination revealed congestive, inflammatory action in the upper third of the eighth dorsal vertebra, which was slightly carious, as here represented, as was also the lower portion of the seventh.

Figure 5.—Case in which death occurred about ten months after the first attack of pain denoting the character of the disease. From a history of the case up to the time I first saw the patient (about two months previous to its death), it was evident there had existed nothing unusual in the character and degree of pain and suffering experienced, from what generally occurs in this disease. Age, 4 years and 3 months; cause of death, disease of the brain.



Fig. 5.

An autopsy disclosed caries of the upper portion of the seventh dorsal vertebra, with slight erosion of the lower portion of the one above, with ulceration of the intervertebral substance, as seen in the cut.

Figure 6.—A case of nearly nine months' continuation, when death occurred, and of a decidedly strumous diathesis, in which the pain did not occur so much in the form of paroxysms as in many others, but less severe and more constant. There was a

good deal of constitutional derangement and general prostration of the system and emaciation, with hectic flush upon the cheeks when the case first came to me, a few weeks only previous to the death of the patient. Age, five years and two months ; cause of death, measles.

An autopsy disclosed *necrosis* of the eighth dorsal vertebra, with deep erosions in some portions of it. The seventh had become somewhat involved, the lower margin of which was eroded, and the intervertebral substance softened and more or less wasted.



Fig. 6.

Disintegration had not proceeded to that extent, however, as to change the normal position of the spine outwardly at that point.

A considerable amount of pus was found in the immediate vicinity of the diseased bone, and the surrounding tissues in a disordered condition.

The progress of the disease was evidently more rapid in this than in most cases, and a slight projection of one or more of the spinous processes, marking the progress of the disease, would soon have become apparent had the patient lived.

Figure 7.—Nearly eighteen months had transpired in this case between the attack of the disease and death of the patient.

The history of the case, when my attention was first called to it, revealed nothing essentially different from what is usually contained in the sad rehearsal of the pain and suffering so common with this class of patients.

The attack was preceded by scarlet fever of a mild type. Age, 3 years and 10 months ; cause of death, pleuro-pneumonia.



Fig. 7.

A post-mortem disclosed caries of the fifth dorsal vertebra, the

lower third of which had nearly disappeared ; the upper portion of the sixth had become carious, and the intervening cartilage disorganized and wasted.

The ninth dorsal had also become affected, giving evidence of the existence of congestive, inflammatory action, with slight erosions in the upper portion of that vertebra. The disease but rarely exists in remote portions of the spine, simultaneously, in the same subject.

Figure 8.—Twenty-two months subsequent to the onset of the disease, we here find nearly one half of the seventh dorsal vertebra removed by caries, with erosive ulceration in the lower portion of the sixth.



Fig. 8.

intensely severe at times, and the general characteristics of the disease more decidedly marked and progressive up to the time I first saw it, about six weeks before the death of the patient, the result of an accident.

Figure 9.—This morbid specimen most clearly and distinctly illustrates the progress of the disease and its effects upon the bony substance involved in a single instance at the expiration of nearly four years from the first attack of the disease.



Fig. 9.

As here observed, the third lumbar vertebra is almost entirely removed by caries and attrition, the second and fourth in close proximity for lack of intervening substance, and both deeply eroded, carious, and disintegrated to a considerable ex-

tent. The posterior portion of the fifth also evinces some evidence of the ravages of the disease.

The history of the case, (that of a lad aged about eleven years), as related to me when I first saw it, about a year previous to the death of the patient, would apply to very many of this class as to the general character of the symptoms throughout the different stages of the disease up to the time I first commenced treating the case.

With the corset on and properly adjusted, the patient exercised freely and apparently with as little suffering and inconvenience as though in good health; and it was while engaged in a severe, sportive contest with one of his playmates that he received the injury which ultimately resulted in his death.

Could these patients always be kept under proper restraint and from *undue* exercise during the treatment, it would greatly facilitate the progress of their recovery, render it more certain, and the results, often more complete and satisfactory.

But, with the whole abdominal viscera so thoroughly supported from their most depending portion by an elevating power, and the spinal column so firmly braced and well protected against motion or jarring sensation at the seat of disease, the patient usually experiences such complete immunity from all suffering, and feels that "security against injurious and painful motion," even, while vigorously exercising, as sometimes to induce him to exceed all proper limits in that respect, as in the latter case, which terminated fatally by the supervention of an acute disease of one of the vital organs.



Fig. 10.

Figure 10.—This is a vertical section of the morbid specimen

last described, the counterpart of which was taken to the College of Physicians and Surgeons, New York, for preservation.

It shows simply the interior condition of the vertebrae involved in the disease.

There have not only been opportunities of witnessing the effects of this disease, at some of its different stages, upon the various tissues involved, but also to observe the results of the efforts of Nature in supplying the waste and repairing the injury when properly assisted by mechanical aid.

"Nature," it is said, "abhors a vacuum." And it may be further stated that she manifests this abhorrence in a no less degree, often, when caused by caries of the vertebrae than under other circumstances, by the thorough manner in which she fills the space with material substance, as illustrated in one of the succeeding cuts.



Fig. 11.

The accompanying figure (11), represents the case of a young lady *æt.* 15 years, placed under my care by her attending physician, then or about that time, President of the Massachusetts Medical Society, who guarded the honor of the profession with as much zeal and criticism, perhaps, as any other member of it.

With the history of the case, he presented me an outline drawing of it, as here represented, taken by himself, at his own suggestion; and any one examining the case would, at once, have been pretty thoroughly convinced that these outlines were no exaggeration of the facts, as to the amount of deformity that existed.

At that time the patient was prostrate and helpless, and could not be turned in bed without acute suffering, frequently attended with spasms. She had been in that condition for several months, when mechanical means were first applied, which gave her almost immediate relief from suffering.

The progress of recovery at first was not rapid; at the expiration of five or six weeks was much more so, and continued on until her recovery was complete, without leaving a trace of the curvature visible. About three years subsequent to her recovery

ery, from this disease, and all treatment in reference to it had ceased, this patient died of consumption, hereditary in the family.

On an examination of the spine, there was found a solid mass of bone, somewhat rough and irregular in its outlines, filling the space originally occupied by a large portion of the last dorsal vertebrae, and smaller portion of the one immediately above and below, as illustrated in figure 12.

It may be proper, perhaps, to state that the patient, from a protracted and painful illness, had become so reduced in flesh and strength before I saw the case (her emaciation exceeding anything I ever before witnessed), that she, of necessity, remained in bed nearly the whole time during the first three or



Fig. 12.

four months she was under my care, which undoubtedly facilitated somewhat the reduction of the curvature and process of consolidation, rendering the latter more complete.

The curvature, however, from the time it was discovered to that when the first attempt was made to arrest and reduce it by mechanical pressure, was rapidly increasing, notwithstanding the patient all the time was confined to the recumbent position, with the exception of a brief period each day, for the space of about two weeks.

Two other cases might be added to further illustrate the process of Nature in restoring portions of the vertebrae removed by caries; but, as they were situated in the cervical region, where the waste of bony substance was very much less than in the case already described, it would not promote the ends of medical science, except by multiplying cases, which would here seem to be of but little *practical* importance.

In this connection, to further illustrate the decided and beneficial effects of the mechanical support here alluded to, I will refer to a case of caries of the spine of long standing, that came under my care about seven months since.

December 13, 1872, the son of Mr. John Bauer, of College Point, L. I., aged 14 years, came into my office, assisted by two attend-

ants, each supporting him by the arm, and thus sustaining in a great measure the weight of the body.

He was suffering acute pain, which was rendered more intense in attempting to stand or walk.

The disease, as I was informed, had then existed six years and a half, resulting in a large waste of bony substance, with an angular projection near the junction of the dorsal and lumbar portions of the spine, as seen in the accompanying cut.



Fig. 13.

On account of previous engagements, I was unable to give this patient the regular and requisite attention at once. Consequently, to relieve the pain and render his condition comfortable as possible for a few days, a substitute for something more complete was employed until I was at liberty to meet the demands of the case more fully.

Upon its application and adjustment the patient walked freely about the room, without aid or assistance, affirming that he was free from pain and suffering.

After the lapse of eight or ten days, a more perfect appliance was adjusted to the patient, and the usual attention received, when his general health and strength began to improve rapidly.

With the exception of about six weeks in the early part of the treatment, the young lad has been steadily employed at some light work, receiving, all the while, such compensation for his services as would be deemed just and ample reward to those of his years of full strength and vigor, and the curvature, at the same time, gradually diminishing.

The patient is still improving in general health and strength, as well as in figure; and there is no reason to doubt that the use of the same means would have been attended with equally decisive and satisfactory results at any *previous* period of the disease, and the patient saved from the extreme suffering to which he had been subjected throughout its various stages to the time treatment commenced.

APPENDIX.

IN the November No. (1873), of the *N. Y. Journal of Medicine*, the editor refers to "a paper read before the Medical Society of the State of New York in 1863, and published in its Transactions on the mechanical treatment of disease of the bodies of the spinal vertebrae," and states that "the author has written a preface to its German edition in which he gives a summary of his present views upon the chief pathological points which bear upon the question of a mechanical treatment, and believes that Pott's disease has a traumatic origin, that it is essentially inflammatory in its early stages, and that it is curable."

The reader has only to refer back to some of the first pages of this circular, or to a late number of the *N. Y. Journal of Medicine* in 1857, for proof incontestable that the disease is not only "curable," but "curable" in some cases, at least, with a complete reduction of the curvature.

These facts were demonstrated beyond all question or controversy nearly eight years previous to the time specified of the reading of that paper, and four years, as there represented, anterior to the commencement of the treatment of those cases, upon which that document was based.

The first case, that of the son of Dr. Lyman Bartlett, of New Bedford, Mass. (the outlines of which were taken by the Doctor and presented to me for publication), of the series here reported, now sixteen years since, remains a living illustration of these facts, as do others that follow in that connection, as well as a large number since treated but not reported, the results of "a mechanical treatment."

The case above referred to is the first instance of a cure with a complete reduction of angular projection of the spine from caries of the vertebrae, of a marked and decided character, found upon record.

At that period the concurrent testimony and influence of almost

the entire medical profession, not only of this but of foreign countries, were arrayed against the use of mechanical means in the treatment of caries of the vertebræ and such results, as have often been clearly demonstrated by their application and use, it regarded as an utter impossibility, asserting that "a cure in Pott's disease must *necessarily* consist of curvature."

Erichsen, with views in harmony with those here expressed upon this subject, in his popular work on Surgery published in 1857, gives what he, in effect, declares to be the ultimatum in the treatment of this disease, and adds his testimony in reference to the results that follow :

"Rest in the horizontal position," he says, "is the only important element in the treatment. In fact the principles of treatment in these cases are extremely simple : the improvement of the general health by good diet, tonics, and sea air, and the employment of counter irritation suited to the age of the patient, is all that can be done." He adds, "Very commonly the disease terminates in abscess and death."

Abscess has existed in nearly twenty per cent. of the cases that I have witnessed ; in a vast majority of which, however, it occurred before I ever saw the patient.

There is far less tendency to its formation in those cases where the spinal column is thoroughly supported and the affected portion of it well protected from jar and motion and as much at rest, as possible, at that point. And when abscess does occur, the patients have a much fairer prospect of recovery with free access to the open air than when confined to the bed, or, shut up at home.

Of the cases of Pott's disease that have been under my care, less than eight per cent. of the whole number have proved fatal under the treatment.

From the period of Mr. Pott's discovery of the pathological character of the disease and his early treatment of it to the time specified, nearly three-fourths of a century, there had been no special advance towards a more successful and satisfactory method of treating this disease and bringing it to a more favorable issue. On the ninth page may be noticed the voluntary statement of Dr. Bartlett in reference to the results of the treatment in *other cases then existing* in New Bedford, and having witnessed in several instances results as striking in their character as those

in that of his own son, he verbally declared it to be "the beginning of a new era in the history of the treatment of Pott's disease."

Having spent several years in the hospitals of Paris and other foreign cities, with an extended professional experience, he had had, at least, a fair opportunity of becoming acquainted with the various methods, both at home and abroad, of treating this disease and contrasting the results with those to which he here refers, as witnessed by him.

It was from his knowledge of the facts thus obtained that this declaration was made.

The seton, once of such frequent use in connection with the horizontal position in the treatment of caries of the spine, was regarded, then as now, by very many of the profession, as too painful in its application as well as unsatisfactory in its results, and totally abandoned.

It was generally conceded that a large majority of cases thus treated terminated fatally, and that those, which did recover, were badly and permanently deformed.

There was but little harmony in the views and practice of the medical profession in regard to any particular or well defined method of treatment and, consequently, many of those afflicted with the disease were left to drift wherever the current chanced to bear them. Not infrequently did they pass, sooner or later, into the hands of some mere mechanic whose illy contrived and grossly constructed appliance so enhanced the patient's suffering as to bring all mechanical arrangements, for such purposes, into disrepute.

There were those, however, who seemed to regard the seton as the *sine qua non* in the treatment, judging from the emphatic declaration, May 15, 1860, of a distinguished member of the profession of this city whose reputation, as a surgeon, was comparatively "world-wide."

While examining the case of a young man, son of Rev. —, Conn., with a large angular projection of the spine between the shoulders, with paralysis of the lower extremities, both of which were powerless, he remarked: "I know all about this disease, and any one who says he can do anything for it but put in a seton and place the patient in bed, is either a *knave* or a *fool*."

Nevertheless, the patient, who was then brought directly to my office without any knowledge, myself, of the statement here

adverted to, until related to me many months after by the patient's father, to whom it was addressed, speedily recovered with the free and full use of his limbs and a very marked reduction of the curvature, without having to submit to either the one or the other.

With the aid of the corset the patient was able soon to sit up, and his recovery was rapid under the treatment.

In addition to what has already been shown in regard to the results of "a mechanical treatment" of Pott's disease of the spine, I will further illustrate by the report of cases of a protracted and decidedly marked character, one of which came recently under my care.

Case 1.

The daughter of Mr. William Smith of Cavendish, Vt., seventeen years of age, was brought to me November 19, 1873, (about five weeks since), for treatment of caries of the spine, in which were involved the two lower dorsal and the first lumbar vertebræ, resulting in a large waste of bony substance, with a corresponding posterior projection.

The disease was preceded by whooping cough, at a subsequent period by diphtheria, and was of nearly nine years standing.

The general history of the case from its early development, as represented, did not vary essentially from others of that class, except in a peculiarly abnormal state of the *general* system in the early stages of the disease, rendering the final result of the case more uncertain.

Up to the time I first saw the patient the treatment consisted in the use of mechanical support, (*sui generis*), blisters, caustic issues, and, for the larger portion of the time, the horizontal position which was *strictly* enforced at one time for two years, with a strap around the hips, to which weights were attached and passed over the foot of the bed, the same arrangement around the chest under the arms with the weights suspended from the head of the bed, for the purpose of extension and counter extension.

When the patient came to me she could neither stand nor sit erect, and had not been able to walk a step for two years and nine months.

As soon as the corset was applied, she took her mother by the

arm and walked around the room. The next day she did the same without help.

At the expiration of eight days the patient was able to sit up all day, reading, writing, and entertaining her friends.

Two weeks later, was able to walk, readily, up and down two long flight of stairs without assistance.

Dec. 17.—A few days subsequent to this, the patient was out with her mother and friends “shopping” and spending the day with them.

Dec. 21.—Visited Central Park.

Dec. 22.—Rode to Springfield, Mass., on her return home, arriving at Cavendish in the afternoon of the following day, and, as I was informed, “with very little fatigue.”

On the second day after her return home, Christmas, was out enjoying a sleigh ride in company with others, making a circuit of twelve miles.

This was, *simply*, the result of “a mechanical treatment,” and nothing more than what is frequently accomplished, by the same process.

Figure 1 is an outline representation of this case—A, pointing to the locality of the disease.

In this position of the patient, the extent of the angular projection is not brought fully into view.

On the right side, above the hip, will be noticed a depression, or hollow, indicative of a slight curve of the spine to the left, a result of the disease.



Case 2.

Master George King of Paisley, Scotland, æt. 13 years, came under treatment for Pott's disease, September 23, 1869.

When less than one year old the patient received an injury of the spine which resulted in caries of the second and third lumbar vertebrae, so large a portion, of which, had been removed by disintegration and absorption of the osseous tissue that the ribs rested firmly upon the hips.

By this adventitious support to the spine and whole superstructure, the affected portions were so relieved from pressure that the patient was quite free from acute suffering.

A plaster cast was taken of the back at the commencement of the treatment, and at the expiration of nine months another.

A wood cut from a photograph of each gives below a correct representation of their outlines, showing the change that occurred in the form and figure of the patient during that time.



Fig. 1.

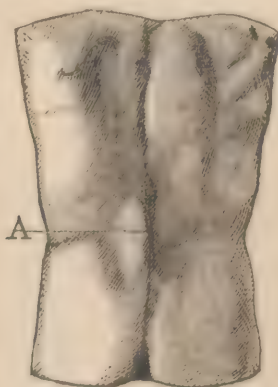


Fig. 2.

The first figure, (A, pointing to locality of the disease), represents the form of the patient at the commencement of the treatment—the body much depressed and lower ribs bearing heavily upon the hips.

The second, as it was at the expiration of nine months, in which, the relative and more normal proportions of the chest, waist, and hips are represented.

During that time the patient increased two inches and a quarter in height, with an increased expansion of the chest of one inch

and a half in circumference, and returned to Scotland, strong, robust, and healthy.

These results demonstrate, both, the *supporting* and *elevating* power of the mechanical means employed in the treatment of the case, without the aid of crutch or other support under the arms.

Case 3.

Son of Mr. J. Burnside, Valparaiso, Chili, South America, æt. 6 years, came to me July 22, 1872, with caries involving the seventh, eighth, and ninth dorsal vertebræ, which, after the elapse of nearly four years, had become very much disorganized and wasted, resulting in a *huge* angular projection of the spine at that point.

The history of the case is as follows : When the patient was about two years and a half old, the nurse, while carrying him in her arms, fell with her whole weight upon the child, its back coming in contact with a sharp stone.

From appearances, the contusion was quite severe, causing great pain at the time, and protracted suffering.



Fig. 1.



Fig. 2.

About seven months after, a small knuckle was discovered, (a slight protrusion, probably, of the eighth dorsal vertebræ), which

increased somewhat rapidly up to the time of the patient's first visit.

Both this and the preceding case were, most assuredly, of a "*traumatic origin*," the disease resulting from an injury of the spine, as it sometimes does. But, in a large proportion of cases it originates spontaneously.

The head and shoulders were much depressed and pitched forward, while the natural form was sadly disfigured.

The patient could take but little exercise when the treatment commenced, and, although but a short distance from my office, the nurse had frequently to carry him to and fro in her arms.

He has had little or no pain during the attention—all the while steadily improving in general health, strength and figure—has increased three inches and a half in height in the past eighteen months, and is still improving and doing well.

Figure 1, is a wood cut from a photograph of the case taken some little time after the commencement of the treatment, when the patient was unable to stand a sufficient length of time for the operation without leaning upon some object for support, as there noticed.

In this position the *locality* of the disease is seen, to which A points; but the extent of the curvature is not brought fully into view, it being in a considerable measure concealed by the patient's dress.

At a subsequent period, the patient had improved so much in figure and acquired such a degree of strength as to be able to stand erect during the tedious process to which he was subjected, without having to depend, at all, upon any object of support upon which to rest, as seen in the succeeding figure.

In the *N. Y. Journal of Medicine*, March, 1858, I gave a description of the apparatus (designated Spinal Corset), with illustrations, used in the treatment, not only of Pott's disease, but of lateral and other deformities of the spine and spinal weakness ; also of its application and *modus operandi*.

It is so adapted to the patient as to inflict, necessarily, neither pain nor suffering, but is worn with ease and comfort, and successfully applied to infants less than twelve months old. The same facility attends putting on and taking it off as that of other corsets, and it is as entirely concealed from view when the patient is dressed.

Terms for Treatment.

As these vary somewhat according to the character and condition of the case, and other qualifying circumstances, they can not be fully defined until after an examination of the patient.

Persons of limited means are *always* duly considered on a *just* representation of their pecuniary condition.

On the application of the corset, the amount decided upon for a specified term of treatment,—three months, six months, or a longer period, is then received.

At the expiration of that term new arrangements are made for further treatment of the case, and the stipulated sum payable at that time.

Respectable board for patients from a distance, who are not otherwise provided for, can be obtained in good localities at a reasonable price.

No corsets made and forwarded to order.

Office consultation fee, from \$5 to \$10.

Office hours from 9 A. M. to 1 P. M., and 2 to 3 P. M.

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